

NOTES ON AUSTRALIAN DIPTERA. XXIX.

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(Communicated by Dr. G. A. Waterhouse.)

(Two Text-figures.)

[Read 26th August, 1931.]

In this paper I present a résumé of our knowledge of the Australian members of the family Piophilidae with the description of a new species, the description of a very striking new genus and species of Helomyzidae, and some data on certain genera of Tachinidae with descriptions of two new species of the genus *Palpostoma* Robineau-Desvoidy. The recorded occurrence of the genus *Catharosia* Rondani is also dealt with on the basis of the material upon which it was included in the Australian list.

Family PIOPHILIDAE.

There are but two genera of this family recorded from Australia, *Piophila* Fallen and *Chaetopiophila* Malloch. The two species of the former that have been found here have been placed in different subgenera by Duda, *cassei* Linné being the genotype of *Piophila*, sens. str., and *contecta* Walker has been referred by that author to *Protopiophila* Duda of which the type is *latipes* Meigen. *Piophila* is distinguished from other subgenera by the microscopically granulose or alutaceous mesonotum with its three widely separated series of microscopic hairs on the disc, one pair of dorsocentrals, and no presutural. *Protopiophila* has the mesonotum rather evenly haired and with four pairs of dorsocentrals, the anterior two pairs very short and fine and hardly distinguishable from the surrounding hairs.

Genus PIOPHILA Fallen.

PIOPHILA LATIPES Meigen.

I recorded this species in a preceding paper in this series (These PROCEEDINGS, 50, p. 316) but afterwards, when Duda distinguished the Australian and European forms on certain characters of the bristling of the thorax and the structure of the fore tarsi, I changed my determination to *contecta* Walker, described from Australia. However, I have since come into possession of specimens from North America and have also received from Dr. Duda a specimen of the European *latipes* and can find no distinctions in characters that would justify me in accepting the specimens from the three regions as distinct species. The European species has not previously been recorded as occurring in North America and with this additional information the distribution of the species is now extended to include Australia as well as that continent and Europe.

As the species are carrion feeders this distribution is to be expected and it is not at all unlikely that other species of the genus may be found in Australia, especially on dead animals found on the seashore. Quite a large percentage of species occur in both the Nearctic and Palearctic regions.

Genus CHAETOPHIOPHILA Malloch.

In distinguishing this genus from *Piophila* I made use of the presence of a pair of quite well developed bristles on the anterior margin of the interfrontalia in addition to four pairs of dorsocentrals, but made no mention of the flattened and haired dorsal surface of the scutellum. With the acquisition of a second specimen, apparently of a new species, I am inclined to consider this last character generic.

There are some striking differences between the genotype and the new species now before me, but the former is known to me from a single female specimen while the other is represented by one male. It is hardly possible that the distinctions in colour and structure are due to sexual dimorphism, and I accept them as distinguishing two species pending the discovery of additional material. The synopsis presented below will serve to distinguish the species.

- A. Wings without outstanding bristles on costa, with the usual closely placed fringe of minute setulae; pleurae entirely fulvous yellow; scutellum subtriangular, the apex narrowly rounded and without warts at bases of the apical bristles, the sides slightly carinate basally; hind legs fulvous yellow; bristles of the thorax well distinguished from the hairs *hyalipennis* Malloch
- AA. Wings with outstanding black bristles from before apex of auxiliary vein to near apex of second, those at end of first vein longer than diameter of costal vein; sternopleura black except on upper margin; scutellum elongate triangular, narrowly transverse at apex, and with a wart at base of each of the apical bristles, the sides quite sharply carinate on entire extent; fore and hind femora and tibiae largely blackened; bristles on anterior portion of thorax hardly distinguishable from the long blackish hairs *scutellata*, n. sp.

CHAETOPHIOPHILA SCUTELLATA, n. sp.

♂. General colour similar to that of the genotype, shining dark fulvous yellow, a black mark on each upper angle of frons and one over ocelli, all of which extend downward over back of head to a slight extent; third antennal segment and apices of palpi black. Thorax with three quite broad black vittae, the short vittae on each side behind suture which are evident in the genotype are indistinguishable here, but the sternopleura is black except along upper margin and the postnotum is black. Abdomen glossy-black. Legs with most of fore femora and tibiae and apices of hind femora blackened. Wings clear. Halteres brownish-yellow.

Structurally similar to the genotype except in being larger, and having the scutellum longer and more distinctly carinate on upper lateral margins, and the wings with outstanding costal bristles. The legs have very much longer and more dense hairs on all segments than in the genotype, but this may be a sexual character. Length, 5 mm.

Type, Botany Bay, N.S.W. (H. Petersen).

The type was lent to me for description by Dr. Aldrich of the United States National Museum, and it will be deposited in the collection of the Museum.

Nothing is known of the larval habits of this genus, but the larvae of *Piophila* may be found commonly in carrion and decaying animal matter or even preserved meats or cheese and it is probable that those of *Chaetopiophila* will be found to have similar habits. The flies frequent flowers and are readily taken by sweeping. Most of the species of *Piophila* are northern in their occurrence and are, as already noted above, very frequently taken on the seashore or the banks of rivers, and especially near dead animals.

Family HELOMYZIDAE.

In a recent revision of the New Zealand species of this family I have given to the group a much broader scope than given to it by Hendel and Czerny in recent works on the Palearctic and world's faunas respectively. I felt in doing so that it was the only course to pursue as, unless I broadened the definition and therefore the scope of the family, I would necessarily have to increase the number of families, and, as the latter is already entirely too great, I preferred to adopt the former course. In doing so I was compelled to drop the family name *Trichoscelidae* recently accepted by Hendel, and many of the New Zealand forms and also those of South America, as well as a few at present known to me from Australia which would fall more or less definitely into that group, are according to my present method component parts of *Helomyzidae*. One of those genera is described herein and it departs from the generally accepted type of *Helomyzidae* even more than do the more typical *Trichosceline* forms. In fact, it is at present unique in the structure and armature of the frons. The lack of well developed costal bristles is not exceptional as there are several genera accepted without question as belonging to the family in which these are either undeveloped or very poorly so. The small size of the dorsal preapical bristle of the tibiae is worth noting, but this character is rather variable.

Genus CAIRNSIMYIA, n.g.

Generic characters.—Frons very distinctly depressed on upper half, at vertex with an almost V-shaped excavation, the posterior ocelli well forward of the hind margin of eyes and almost in line with, or slightly in front of, the single upper orbital bristle on each side, which is about one-fourth from hind margin of frons when viewed from above; two strong vertical bristles situated rather high on each side of vertical cavity; postverticals and postocellars lacking; ocellars quite long, situated on each side of anterior ocellus and directed laterally; frons longer than wide, narrowed near hind margin; profile of head as in Text-figure 1; aristae bare; antennae rather widely separated, the space between their bases flattened; centre of propleura and the prosternum with fine short hairs; propleural bristle present; mesopleura without bristles, except a fine one on centre of hind margin; sternopleura with three or four upper marginal bristles; dorsocentrals one pair; scutellum haired on disc, with four marginal bristles. Wings with the auxiliary vein running very close to first vein apically but not connected with it; costa without bristles, ending at apex of fourth vein; sixth vein ceasing a short distance from margin of wing. Legs normal, the preapical dorsal bristle very small.

Genotype, the following species.

CAIRNSIMYIA CAVIFRONS, n. sp.

♂, ♀. Clay-yellow, slightly shining, with brown or fuscous markings. Head with brown dusting which is changeable on frons according to the angle from which it is viewed; face blackish on centre, especially below and on labrum; third antennal segment darkened on upper margin. Thorax with yellowish-brown dusting, mesonotum with five reddish-brown vittae, the central three broken and more or less connected on part of their courses, the sublateral pair broader and usually complete, notopleural suture brown; pleura with more golden dusting and with a reddish vitta across mesopleura, the scutellum with two brown spots on base. Abdomen with each tergite broadly brown at base. Each tibia with two brown annuli. Wings with many dark marks (Text-fig. 2).

Eyes bare, frons with some fine black hairs. Mesonotum with rather closely set short decumbent dark hairs, one humeral, two notopleurals, one supra-alar, two postalars, one pair of dorsocentrals and one pair of acrostichals before scutellum. Abdomen ovate; hypopygium of male complex. Femoral bristles very



Text-fig. 1.—Head of *Cairnsimyia cavifrons* from the side, and from in front (partial).

Text-fig. 2.—*Cairnsimyia cavifrons*, wing.

fine, noticeable only on the fore pair; mid tarsi in both sexes with some short stout black bristles at apices of the segments below. Length, 5 mm.

Type, male, allotype, and two paratypes, Cairns, Queensland, and Kuranda, Queensland, from the Lichtwardt collection in the Deutsches Entomologisches Institut, Berlin.

A paratype will be sent to the Australian Museum through the kindness of Dr. Walther Horn, director of the institute which owns the material.

Family TACHINIDÆ.

Genus CATHAROSIA Rondani.

In my Catalogue of this family published in a preceding paper of this series I have listed a species of this genus described by Curran, *varicolor*, from Australia. I have recently been able to examine two paratypes, a male and female, in the United States National Museum and state definitely that the species does not belong to *Catharosia*. The latter has at least one distinct bristle on the central part of the propleura, the lower calypter is narrow, and rounded at apex, and the female has the ovipositor prong-like. In Curran's species the centre of the propleura is bare, the lower calypter is large, widened apically, and almost transverse at apex, and the ovipositor of the female is stout and curved forward below abdomen. The only character that might cause one to associate the Australian species with *Catharosia* is the venation of the wing, both genera having the first posterior cell closed at a considerable distance from the margin of the wing, and with a long straight petiole. I have examined the genotype of *Catharosia* and those of certain closely related genera and find them in agreement in the three essential characters listed above.

Merely to point out the erroneous placement of *varicolor* is insufficient reason for this note, and I desire to indicate that the species belongs to a genus very close to *Hyalomyia*, as is proven by the lack of strong dorsal bristles on the abdomen, the general structure of both sexes, the wing venation, and the large

lower calypter. There is a puparium mounted with the male which I have seen here and this agrees closely with that of American species of *Alophora* Robineau-Desvoidy (= *Hyalomyia*) described by C. T. Greene, and others of the same genus seen by me from India. It is possible that the genus *Austrophasia* Townsend may be utilized for the reception of *varicolor*, as it agrees very well with *rufiventris* Macquart, the genotype, but it is evidently distinct specifically from the latter.

The host of *varicornis* is *Dysdercus sidae* which is also the host of *Alophora auriventris* Curran described on the same page as the former. As far as known all the species of the group attack Hemiptera; the host of *Catharosia* is unknown.

Genus MACROPIA Malloch.

In a recent letter from Dr. C. H. T. Townsend acknowledging receipt of my papers on Australian Tachinidae he informed me that this genus was probably synonymous with *Anaperistommyia* Townsend. An examination of the genotype of the latter proves that this suggestion is correct. At the same time I examined the genotype of *Halidaya* Egger, and the only distinction between that genus and the first one that I could discover consisted of the lack of setulae on the fifth wing-vein on its upper surface. I am not inclined to accept this as a generic character and in all probability the genera will be accepted as synonymous in any comprehensive treatment of the family. In fact Bezzi has included species with setulose and bare fifth veins in his key to the species of *Halidaya* (*Bull. Ent. Res.*, 16, pt. 2, 1925, p. 121). Townsend in his original description of *Anaperistommyia* (*Suppl. Ent.*, No. 14, 1926, p. 15) cited as his genotype *optica*, n. sp., and stated that this was identical with the species described by Bezzi under the name *Halidaya luteicornis* Walker. He stated that the species described by Walker was probably distinct from that identified as it by Bezzi, but gave no specific reason for the opinion except in citing the localities, Walker's species being from Gilolo and the other from Sumatra. Townsend gave *H. argentea* Egger as probably congeneric with *optica*. The latter is European, and is most closely similar to the Australian species in colour characters. It will be necessary to make a careful comparative examination of Australian and European examples to determine their status. Bezzi placed the genus *Halidaya* in the subfamily Thelairinae and recorded the host of *H. luteicornis* Walker (*optica* Townsend) as *Parnara mathias*, and its occurrence in Malacca, Seram, and Taiping, Federated Malay States. He also stated that he had seen examples from Canton and Hangchow which are in the collection of the United States National Museum. The genus *Halidayopsis* Townsend (*Ent. Mitt.*, 16, 1927, 282) is very closely related to this one, but I have not seen the genotype.

Genus PALPOSTOMA Robineau-Desvoidy.

PALPOSTOMA ARMICEPS, n. sp.

♀. Head testaceous yellow, with whitish dust which is most distinct on the frontal orbits and parafacials, aristae brownish, hairs and bristles fuscous, a few below posterior margin of mouth opening yellowish. Thorax rather darker coloured than head with the mesonotum almost entirely infuscated and grey-dusted, the usual four vittae dark-brown but not conspicuous; pleura with fuscous marks covering almost all of sclerites except propleura, dusted like the mesonotum. Abdomen coloured as the thorax, but more noticeably grey-dusted and the dorsum

with dark-brown dots at bases of the hairs and bristles which are less fused on the third visible tergite than on those anterior to it. Legs tawny-yellow. Wings greyish-hyaline, veins yellowish. Calyptrae whitish. Halteres yellow.

Frons at narrowest point not wider than third antennal segment, much widened to anterior margin, the orbits separated and with numerous short strong hairs and a series of bristles along inner margins; verticals short and fine, not longer than the ocellars; no forwardly-directed orbitals present; parafacials at base of antennae a little wider than third antennal segment, with very short but stout black setulae, and about half as wide as height of cheek, the latter with many spine-like bristles adjacent to the rather short stout vibrissa; third antennal segment about three times as long as second; palpi moderately long; proboscis with the apical section about as long as palpi and the palpi-like apical processes distinct in type. Thorax with the usual bristles, but the anterior intra-alar long, the sternopleurals 1 + 1, and some fine erect dark hairs on lower margin of anterior spiracle; sides of scutellum haired on entire extent anteriorly, apex slightly emarginate. Abdomen conical, lateral bristles on all tergites, second visible tergite with a pair of central apical bristles, third with a complete series of apical bristles which are much stronger than those on the fourth tergite. Fore tibia with one or two posterior submedian bristles; mid tibia with the ventral bristle very short; hind tibia with two anteroventral bristles. First posterior cell of wing with the petiole more than half as long as inner cross-vein; outer cross-vein sinuate, connecting with fourth vein about two-thirds from inner cross-vein to bend of fourth. Length, 10 mm.

Type, Townsville, Qld., no other data (F. H. Taylor). In United States National Museum. Lent to me for description by Dr. J. M. Aldrich.

PALPOSTOMA SUBSESSILIS, n. sp.

♂, ♀. Differs in colour from the preceding species in having the mesonotum almost without infuscation, and less noticeably whitish dusted, the vittae appearing less dark and dividing the dust anteriorly but not as distinctly posteriorly, the male having the dust on the greater portion of the postsutural portion more yellowish than whitish; pleura unspotted. Abdomen with a trace of a dark dorsocentral vitta anteriorly, and the third and fourth visible tergites largely dark brown, with greyish dusting, and dark dots at bases of the hairs and bristles.

Differs structurally from *armiceps* in having the frons of the female narrower, distinctly narrower than the third antennal segment, that of the male practically linear, the bristles adjacent to the vibrissae not nearly as strong, and the anterior thoracic spiracle bare below. Most of the specimens have a short bristle on the anterodorsal surface of the fore tibia beyond its middle, and there is usually a weaker lower anterior sternopleural bristle present. The first posterior cell of the wing is usually closed just at the margin of the wing and more rarely it is very short petiolate, the petiole being almost indistinguishable except with a high power lens; the outer cross-vein is not beyond midway from inner cross-vein to bend of fourth, but usually noticeably nearer to the cross-vein than to the bend. In other respects very similar to *armiceps*. Length, 8-10 mm.

Type, female, Sydney, N.S.W., 2.12.1923; allotype, topotypical, 1.1.1924; paratypes, topotypical, various dates in November, December, and January, 1923-24 (Health Dept.); five specimens Woy Woy, various dates in September, 1930 (R. W. Burrell), reared from puparia in abdomen of host, a scarabaeid beetle.

Last-mentioned five specimens in United States National Museum.

Genus *PROSENA* St. Fargeau and Serville.

Mr. C. H. Curran has recently added two new species to the Australian list and I present below the references.

PROSENA VARIEGATA Curran.

Ann. Ent. Soc. Amer., 22, 1929, p. 509.

A large species, 10-12 mm. in length, with the frontal vitta obsolete above in the male, the legs very long and reddish, with the tarsi black. Lacking many of the details used in my recently published key to the Australian species of the genus and without information as to the bristling of the mid tibia and structure of the hypopygium, it is impossible to determine whether this species was in the material which I had before me.

Locality, Gravesend, Queensland, J. Mann.

Female not described.

PROSENA VARIA Curran.

Ann. Ent. Soc. Amer., 22, 1929, p. 509.

This species is darker in colour than the preceding one, with the legs black and only the tibiae reddish, but the structural details are even less satisfactorily dealt with and, as in the other case, it is impossible to place the species in my key. Length, 9 mm.

Locality: New South Wales. Schrader.

No information is given as to the disposition of the type specimens.

Genus *DELTA* Malloch.

This generic name was used in my preparation of the manuscript of a recent paper on the family as a tentative appellation and unfortunately was allowed to go through the press as the name of the genus (These PROCEEDINGS, 55, 1930, p. 332). The name is preoccupied by *Delta* Saalmuller in *Insecta* and I propose to replace it with *Deltomyza* n.n.

Genus *VORIELLA* Malloch.

The genotype cited (These PROCEEDINGS, 55, 1930, p. 335), *recedens*, n. sp., is a tentative name for *uniseta* which was not changed when the manuscript was finally checked for the printer.

Genus *APILIA* Malloch.

In a recent letter Dr. C. H. T. Townsend informs me that this genus is very close to, if not identical with, *Neophryxe* Townsend.

The genotype of the latter is in the collection of the United States National Museum and an examination discloses the fact that it has prosternal setulae which are, as indicated in my original description of *Apilia*, lacking in my genotype.
